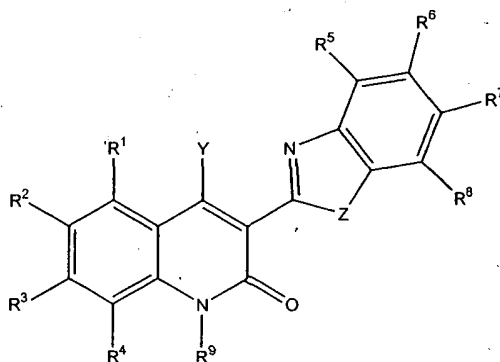


## CLAIMS

What is claimed is:

- 1 1. A compound having the structure I, a tautomer of the
- 2 compound, a pharmaceutically acceptable salt of the compound, or a
- 3 pharmaceutically acceptable salt of the tautomer



I

wherein,

Y is selected from the group consisting of  $-OR^{10}$  groups,  $-C(=O)-R^{11}$  groups,  $-NR^{12}R^{13}$  groups, substituted and unsubstituted alkynyl groups, substituted and unsubstituted heterocyclylalkyl groups, substituted and unsubstituted alkylaminoalkyl groups, substituted and unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted arylaminoalkyl groups, substituted and unsubstituted diarylaminoalkyl groups, substituted and unsubstituted (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted heterocyclylaminoalkyl groups, substituted and unsubstituted saturated heterocyclyl groups, substituted and unsubstituted heterocyclyloxyalkyl groups, substituted and unsubstituted hydroxyalkyl groups, and substituted and unsubstituted aryloxyalkyl groups;

19 Z is selected from the group consisting of O, S, and  $\text{NR}^{14}$  groups;

20  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$  may be the same or different and are  
21 independently selected from the group consisting of H, Cl, Br, F, I,  
22 -CN, -NO<sub>2</sub>, -OH, -OR<sup>15</sup> groups, -NR<sup>16</sup>R<sup>17</sup> groups, substituted and  
23 unsubstituted amidinyl groups, substituted and unsubstituted  
24 guanidinyl groups, substituted and unsubstituted primary, secondary,  
25 and tertiary alkyl groups, substituted and unsubstituted aryl groups,  
26 substituted and unsubstituted alkenyl groups, substituted and  
27 unsubstituted alkynyl groups, substituted and unsubstituted  
28 heterocyclyl groups, substituted and unsubstituted aminoalkyl groups,  
29 substituted and unsubstituted alkylaminoalkyl groups, substituted and  
30 unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted  
31 arylaminoalkyl groups, substituted and unsubstituted  
32 diarylaminoalkyl groups, substituted and unsubstituted  
33 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
34 heterocyclylalkyl groups, substituted and unsubstituted  
35 diheterocyclylaminoalkyl groups, substituted and unsubstituted  
36 (heterocyclyl)(alkyl)aminoalkyl groups, substituted and unsubstituted  
37 (heterocyclyl)(aryl)aminoalkyl groups, and -C(=O)R<sup>18</sup> groups;

38  $\text{R}^5$ ,  $\text{R}^6$ ,  $\text{R}^7$ , and  $\text{R}^8$  may be the same or different and are  
39 independently selected from the group consisting of H, Cl, Br, F, I,  
40 -NO<sub>2</sub>, -OH, -OR<sup>19</sup> groups, -NR<sup>20</sup>R<sup>21</sup> groups, -SH, -SR<sup>22</sup> groups,  
41 -S(=O)R<sup>23</sup> groups, -S(=O)<sub>2</sub>R<sup>24</sup> groups, -CN, substituted and  
42 unsubstituted amidinyl groups, substituted and unsubstituted  
43 guanidinyl groups, substituted and unsubstituted primary, secondary,  
44 and tertiary alkyl groups, substituted and unsubstituted aryl groups,  
45 substituted and unsubstituted alkenyl groups, substituted and  
46 unsubstituted alkynyl groups, substituted and unsubstituted  
47 heterocyclyl groups, substituted and unsubstituted heterocyclylalkyl

48 groups,  $-C(=O)R^{25}$  groups, substituted and unsubstituted aminoalkyl  
49 groups, substituted and unsubstituted alkylaminoalkyl groups,  
50 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
51 and unsubstituted arylaminoalkyl groups, substituted and  
52 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
53 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
54 heterocyclaminoalkyl groups, substituted and unsubstituted  
55 diheterocyclaminoalkyl groups, substituted and unsubstituted  
56 (heterocycl)(alkyl)aminoalkyl groups, substituted and unsubstituted  
57 (heterocycl)(aryl)aminoalkyl groups, substituted and unsubstituted  
58 hydroxyalkyl groups, substituted and unsubstituted alkoxyalkyl  
59 groups, substituted and unsubstituted aryloxyalkyl groups, and  
60 substituted and unsubstituted heterocycloxyalkyl groups;

61  $R^9$  and  $R^{14}$  may be the same or different and are independently  
62 selected from the group consisting of H, -OH, substituted and  
63 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
64 groups,  $-NH_2$ , substituted and unsubstituted alkylamino groups,  
65 substituted and unsubstituted arylamino groups, substituted and  
66 unsubstituted dialkylamino groups, substituted and unsubstituted  
67 diarylamino groups, substituted and unsubstituted (alkyl)(aryl)amino  
68 groups, substituted and unsubstituted alkyl groups, substituted and  
69 unsubstituted aryl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl groups, and  
70  $-C(=O)$ -aryl groups;

71  $R^{10}$  is selected from the group consisting of substituted and  
72 unsubstituted aryl groups, substituted and unsubstituted heterocycl  
73 groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl groups,  $-C(=O)$ -aryl groups,  
74  $-C(=O)O$ -alkyl groups,  $-C(=O)O$ -aryl groups,  $-C(=O)NH_2$ ,  
75  $-C(=O)NH$ (alkyl) groups,  $-C(=O)NH$ (aryl) groups,  
76  $-C(=O)N$ (alkyl)<sub>2</sub> groups,  $-C(=O)N$ (aryl)<sub>2</sub> groups,

77 -C(=O)N(alkyl)(aryl) groups, -NH<sub>2</sub>, -NH(alkyl) groups, -NH(aryl)  
78 groups, -N(alkyl)<sub>2</sub> groups, -N(alkyl)(aryl) groups, -N(aryl)<sub>2</sub> groups,  
79 -NH(heterocyclyl) groups, -N(heterocyclyl)<sub>2</sub> groups,  
80 -N(alkyl)(heterocyclyl) groups, -N(aryl)(heterocyclyl),  
81 -C(=O)NH(heterocyclyl) groups, -C(=O)N(heterocyclyl)<sub>2</sub> groups,-  
82 -C(=O)N(alkyl)(heterocyclyl) groups, -C(=O)N(aryl)(heterocyclyl)  
83 groups, and substituted and unsubstituted heterocyclylalkyl groups;

84 R<sup>11</sup> is selected from the group consisting of H, -NH<sub>2</sub>, -NH(alkyl)  
85 groups, -NH(aryl) groups, -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub> groups,  
86 -N(alkyl)(aryl) groups, -NH(heterocyclyl) groups, -N(heterocyclyl)<sub>2</sub>  
87 groups, -N(alkyl)(heterocyclyl) groups, -N(aryl)(heterocyclyl)  
88 groups, -O-alkyl groups, O-aryl groups, heterocycliloxyalkyl  
89 groups, and substituted and unsubstituted aryl groups;

90 R<sup>12</sup> is selected from the group consisting of H, substituted and  
91 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
92 and substituted and unsubstituted heterocyclyl groups;

93 R<sup>13</sup> is selected from the group consisting of substituted and  
94 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
95 substituted and unsubstituted heterocyclyl groups, -OH, alkoxy  
96 groups, aryloxy groups, -NH<sub>2</sub>, substituted and unsubstituted  
97 heterocyclylalkyl groups, substituted and unsubstituted aminoalkyl  
98 groups, substituted and unsubstituted alkylaminoalkyl groups,  
99 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
100 and unsubstituted arylaminoalkyl groups, substituted and  
101 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
102 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
103 alkylamino groups, substituted and unsubstituted arylamino groups,  
104 substituted and unsubstituted dialkylamino groups, substituted and

105 unsubstituted diarylamino groups, substituted and unsubstituted  
 106 (alkyl)(aryl)amino groups, -C(=O)H, -C(=O)-alkyl groups,  
 107 -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl groups,  
 108 -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,  
 109 -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub> groups,  
 110 -C(=O)N(alkyl)(aryl) groups, -C(=O)-heterocyclyl groups,  
 111 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,  
 112 -C(=O)-N(heterocyclyl)<sub>2</sub> groups, -C(=O)N(aryl)(heterocyclyl)  
 113 groups, substituted and unsubstituted heterocyclylaminoalkyl groups,  
 114 substituted and unsubstituted hydroxyalkyl groups, substituted and  
 115 unsubstituted alkoxyalkyl groups, substituted and unsubstituted  
 116 aryloxyalkyl groups, substituted and unsubstituted  
 117 heterocycliloxyalkyl groups, and -C(=O)-N(alkyl)(heterocyclyl)  
 118 groups;

119 R<sup>15</sup> and R<sup>19</sup> may be the same or different and are independently  
 120 selected from the group consisting of substituted and unsubstituted  
 121 alkyl groups, substituted and unsubstituted aryl groups, substituted  
 122 and unsubstituted heterocyclyl groups, substituted and unsubstituted  
 123 heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl groups,  
 124 -C(=O)-aryl groups, -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups,  
 125 -C(=O)NH(aryl) groups, -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub>  
 126 groups, -C(=O)N(alkyl)(aryl) groups, -NH(heterocyclyl) groups,  
 127 -N(heterocyclyl)<sub>2</sub> groups, -N(alkyl)(heterocyclyl) groups,  
 128 -N(aryl)(heterocyclyl) groups, substituted and unsubstituted  
 129 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
 130 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
 131 substituted and unsubstituted arylaminoalkyl groups, substituted and  
 132 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
 133 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
 134 heterocyclylaminoalkyl, substituted and unsubstituted

- 135 diheterocyclylaminoalkyl, substituted and unsubstituted  
136 (heterocyclyl)(alkyl)aminoalkyl, substituted and unsubstituted  
137 (heterocyclyl)(aryl)aminoalkyl, substituted and unsubstituted  
138 alkoxyalkyl groups, substituted and unsubstituted hydroxyalkyl  
139 groups, substituted and unsubstituted aryloxyalkyl groups, and  
140 substituted and unsubstituted heterocycloxyalkyl groups;
- 141  $R^{16}$  and  $R^{20}$  may be the same or different and are independently  
142 selected from the group consisting of H, substituted and unsubstituted  
143 alkyl groups, substituted and unsubstituted aryl groups, and  
144 substituted and unsubstituted heterocyclyl groups;
- 145  $R^{17}$  and  $R^{21}$  may be the same or different and are independently  
146 selected from the group consisting of H, substituted and unsubstituted  
147 alkyl groups, substituted and unsubstituted aryl groups, substituted  
148 and unsubstituted heterocyclyl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl  
149 groups,  $-C(=O)$ -aryl groups,  $-C(=O)NH_2$ ,  $-C(=O)NH(alkyl)$   
150 groups,  $-C(=O)NH(aryl)$  groups,  $-C(=O)N(alkyl)_2$  groups,  
151  $-C(=O)N(aryl)_2$  groups,  $-C(=O)N(alkyl)(aryl)$  groups,  
152  $-C(=O)O$ -alkyl groups,  $-C(=O)O$ -aryl groups, substituted and  
153 unsubstituted heterocyclylalkyl groups, substituted and unsubstituted  
154 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
155 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
156 substituted and unsubstituted arylaminoalkyl groups, substituted and  
157 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
158 (alkyl)(aryl)aminoalkyl groups,  $-C(=O)$ -heterocyclyl groups,  
159  $-C(=O)O$ -heterocyclyl groups,  $-C(=O)NH(heterocyclyl)$  groups,  
160  $-C(=O)N(heterocyclyl)_2$  groups,  $-C(=O)N(aryl)(heterocyclyl)$   
161 groups, substituted and unsubstituted heterocyclylaminoalkyl groups,  
162 substituted and unsubstituted diheterocyclylaminoalkyl groups,  
163 substituted and unsubstituted (heterocyclyl)(alkyl)aminoalkyl groups,

164 substituted and unsubstituted (heterocyclyl)(aryl)aminoalkyl groups,  
165 substituted and unsubstituted hydroxyalkyl groups, substituted and  
166 unsubstituted alkoxyalkyl groups, substituted and unsubstituted  
167 aryloxyalkyl groups, substituted and unsubstituted  
168 heterocycloxyalkyl groups, and -C(=O)-N(alkyl)(heterocyclyl)  
169 groups;

170  $R^{18}$ ,  $R^{23}$ ,  $R^{24}$ , and  $R^{25}$  may be the same or different and are  
171 independently selected from the group consisting of H, -NH<sub>2</sub>,  
172 -NH(alkyl) groups, -NH(aryl) groups, -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub>  
173 groups, -N(alkyl)(aryl) groups, -NH(heterocyclyl) groups,  
174 -N(heterocyclyl)(alkyl) groups, -N(heterocyclyl)(aryl) groups,  
175 -N(heterocyclyl)<sub>2</sub> groups, substituted and unsubstituted alkyl groups,  
176 substituted and unsubstituted aryl groups, -OH, substituted and  
177 unsubstituted alkoxy groups, substituted and unsubstituted  
178 heterocyclyl groups, substituted and unsubstituted aryloxy groups,  
179 heterocycloxy groups, -NHOH, -N(alkyl)OH groups, -N(aryl)OH  
180 groups, -N(alkyl)O-alkyl groups, -N(aryl)O-alkyl groups,  
181 -N(alkyl)O-aryl groups, and -N(aryl)O-aryl groups; and

182  $R^{22}$  is selected from the group consisting of substituted and  
183 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
184 and substituted and unsubstituted heterocyclyl groups.

1                    2.     The compound according to claim 1, wherein Y is selected  
2 from the group consisting of -OR<sup>10</sup> groups, -NR<sup>12</sup>R<sup>13</sup> groups, and substituted and  
3 unsubstituted alkynyl groups.

1                    3.     The compound according to claim 1, wherein Z is an -NR<sup>14</sup>  
2 group.

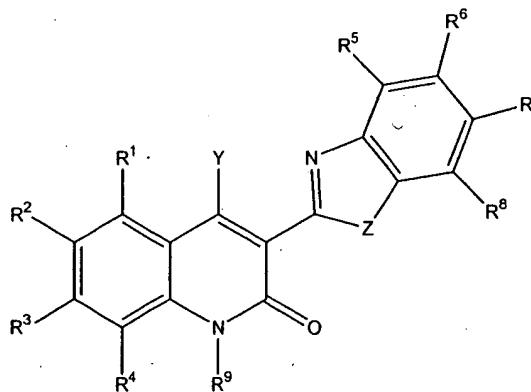
1                    4.     The compound according to claim 1, wherein R<sup>1</sup> is selected  
2     from the group consisting of -H, substituted and unsubstituted alkoxy groups,  
3     substituted and unsubstituted heterocyclalkoxy groups, substituted and  
4     unsubstituted heterocycloxy groups, and substituted and unsubstituted heterocycl  
5     groups.

1                    5.     The compound according to claim 1, wherein R<sup>2</sup> is selected  
2     from the group consisting of H, F, Cl, -NO<sub>2</sub>, substituted and unsubstituted  
3     heterocyclalkoxy groups, and substituted and unsubstituted heterocycl groups.

1                    6.     The compound according to claim 1, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2     alkyl group.

1                    7.     The compound according to claim 1, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2     -OR<sup>19</sup> group and R<sup>19</sup> is an alkyl group, an aryl group, a heterocycl group, or a  
3     heterocyclalkyl group.

1                    8.     A compound having the structure I, a tautomer of the  
2     compound, a pharmaceutically acceptable salt of the compound, or a  
3     pharmaceutically acceptable salt of the tautomer



I

4  
5                    wherein,



Y is selected from the group consisting of  $-OR^{10}$  groups,  $-C(=O)-R^{11}$  groups,  $-NR^{12}R^{13}$  groups, substituted and unsubstituted alkynyl groups, substituted and unsubstituted heterocyclalkyl groups, substituted and unsubstituted alkylaminoalkyl groups, substituted and unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted arylaminoalkyl groups, substituted and unsubstituted diarylaminoalkyl groups, substituted and unsubstituted (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted heterocyclaminoalkyl groups, substituted and unsubstituted saturated heterocycl groups, substituted and unsubstituted heterocycloxyalkyl groups, substituted and unsubstituted hydroxyalkyl groups, and substituted and unsubstituted aryloxyalkyl groups;

Z is selected from the group consisting of O, S, and  $NR^{14}$  groups;

$R^1$ ,  $R^2$ ,  $R^3$ , and  $R^4$  may be the same or different and are independently selected from the group consisting of H, Cl, Br, F, I,  $-CN$ ,  $-NO_2$ ,  $-OH$ ,  $-OR^{15}$  groups,  $-NR^{16}R^{17}$  groups, substituted and unsubstituted amidinyl groups, substituted and unsubstituted guanidinyl groups, substituted and unsubstituted primary, secondary, and tertiary alkyl groups, substituted and unsubstituted aryl groups, substituted and unsubstituted alkenyl groups, substituted and unsubstituted alkynyl groups, substituted and unsubstituted heterocycl groups, substituted and unsubstituted aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl groups, substituted and unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted arylaminoalkyl groups, substituted and unsubstituted diarylaminoalkyl groups, substituted and unsubstituted (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted heterocyclalkyl groups, and  $-C(=O)R^{18}$  groups;

$R^5$ ,  $R^6$ ,  $R^7$ , and  $R^8$  may be the same or different and are independently selected from the group consisting of H, Cl, Br, F, I,  $-NO_2$ ,  $-OH$ ,  $-OR^{19}$  groups,  $-NR^{20}R^{21}$  groups,  $-SH$ ,  $-SR^{22}$  groups,  $-S(=O)R^{23}$  groups,  $-S(=O)_2R^{24}$  groups,  $-CN$ , substituted and unsubstituted amidinyl groups, substituted and unsubstituted guanidinyl groups, substituted and unsubstituted primary, secondary, and tertiary alkyl groups, substituted and unsubstituted aryl groups, substituted and unsubstituted alkenyl groups, substituted and unsubstituted alkynyl groups, substituted and unsubstituted heterocyclyl groups, substituted and unsubstituted heterocyclylalkyl groups,  $-C(=O)R^{25}$  groups, substituted and unsubstituted aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl groups, substituted and unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted arylaminoalkyl groups, substituted and unsubstituted diarylaminoalkyl groups, substituted and unsubstituted (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted heterocyclylaminoalkyl groups, substituted and unsubstituted hydroxyalkyl groups, substituted and unsubstituted alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl groups, and substituted and unsubstituted heterocycloxyalkyl groups;

$R^9$  is selected from the group consisting of  $-OH$ , substituted and unsubstituted alkoxy groups, substituted and unsubstituted aryloxy groups,  $-NH_2$ , substituted and unsubstituted alkylamino groups, substituted and unsubstituted arylamino groups, substituted and unsubstituted dialkylamino groups, substituted and unsubstituted diarylamino groups, substituted and unsubstituted (alkyl)(aryl)amino groups, substituted and unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl groups, and  $-C(=O)$ -aryl groups;

64 R<sup>10</sup> is selected from the group consisting of substituted and  
65 unsubstituted aryl groups, substituted and unsubstituted heterocycl  
66 groups, -C(=O)H, -C(=O)-alkyl groups, -C(=O)-aryl groups,  
67 -C(=O)O-alkyl groups, -C(=O)O-aryl groups, -C(=O)NH<sub>2</sub>,  
68 -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,  
69 -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub> groups,  
70 -C(=O)N(alkyl)(aryl) groups, -NH<sub>2</sub>, -NH(alkyl) groups, -NH(aryl)  
71 groups, -N(alkyl)<sub>2</sub> groups, -N(alkyl)(aryl) groups, -N(aryl)<sub>2</sub> groups,  
72 -C(=O)NH(heterocycl) groups, -C(=O)N(heterocycl)<sub>2</sub> groups,  
73 -C(=O)N(alkyl)(heterocycl) groups, -C(=O)N(aryl)(heterocycl)  
74 groups, and substituted and unsubstituted heterocyclalkyl groups;

75 R<sup>11</sup> is selected from the group consisting of H, -NH<sub>2</sub>, -NH(alkyl)  
76 groups, -NH(aryl) groups, -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub> groups,  
77 -N(alkyl)(aryl) groups, -NH(heterocycl) groups, -N(heterocycl)<sub>2</sub>  
78 groups, -N(alkyl)(heterocycl) groups, -O-alkyl groups, O-aryl  
79 groups, substituted and unsubstituted alkyl groups, and substituted  
80 and unsubstituted aryl groups;

81 R<sup>12</sup> is selected from the group consisting of H, substituted and  
82 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
83 and substituted and unsubstituted heterocycl groups;

84 R<sup>13</sup> is selected from the group consisting of H, substituted and  
85 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
86 substituted and unsubstituted heterocycl groups, -OH, alkoxy  
87 groups, aryloxy groups, -NH<sub>2</sub>, substituted and unsubstituted  
88 alkylamino groups, substituted and unsubstituted arylamino groups,  
89 substituted and unsubstituted dialkylamino groups, substituted and  
90 unsubstituted diarylamino groups, substituted and unsubstituted  
91 (alkyl)(aryl)amino groups, -C(=O)H, -C(=O)-alkyl groups,

92 -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl groups,  
 93 -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,  
 94 -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub> groups,  
 95 -C(=O)N(alkyl)(aryl) groups, substituted and unsubstituted  
 96 heterocyclalkyl groups, substituted and unsubstituted aminoalkyl  
 97 groups, substituted and unsubstituted alkylaminoalkyl groups,  
 98 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
 99 and unsubstituted arylaminoalkyl groups, substituted and  
 100 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
 101 (alkyl)(aryl)aminoalkyl groups, -C(=O)-heterocycl groups,  
 102 -C(=O)-O-heterocycl groups, -C(=O)NH(heterocycl) groups,  
 103 -C(=O)-N(heterocycl)<sub>2</sub> groups, -C(=O)N(aryl)(heterocycl)  
 104 groups, -C(=O)-N(alkyl)(heterocycl) groups, substituted and  
 105 unsubstituted heterocyclaminoalkyl groups, substituted and  
 106 unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
 107 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
 108 groups, and substituted and unsubstituted heterocycloxyalkyl  
 109 groups;

110 R<sup>14</sup> is selected from the group consisting of H, -OH, substituted and  
 111 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
 112 groups, -NH<sub>2</sub>, substituted and unsubstituted alkylamino groups,  
 113 substituted and unsubstituted arylamino groups, substituted and  
 114 unsubstituted dialkylamino groups, substituted and unsubstituted  
 115 diarylamino groups, substituted and unsubstituted (alkyl)(aryl)amino  
 116 groups, substituted and unsubstituted alkyl groups, substituted and  
 117 unsubstituted aryl groups, -C(=O)H, -C(=O)-alkyl groups, and  
 118 -C(=O)-aryl groups;

119 R<sup>15</sup> and R<sup>19</sup> may be the same or different and are independently  
 120 selected from the group consisting of substituted and unsubstituted

121 alkyl groups, substituted and unsubstituted aryl groups, substituted  
122 and unsubstituted heterocyclyl groups, substituted and unsubstituted  
123 heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl groups,  
124 -C(=O)-aryl groups, -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups,  
125 -C(=O)NH(aryl) groups, -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub>  
126 groups, -C(=O)N(alkyl)(aryl) groups, substituted and unsubstituted  
127 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
128 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
129 substituted and unsubstituted arylaminoalkyl groups, substituted and  
130 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
131 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
132 heterocyclylaminoalkyl, substituted and unsubstituted  
133 diheterocyclylaminoalkyl, substituted and unsubstituted  
134 (heterocyclyl)(alkyl)aminoalkyl, substituted and unsubstituted  
135 (heterocyclyl)(aryl)aminoalkyl, substituted and unsubstituted  
136 alkoxyalkyl groups, substituted and unsubstituted hydroxyalkyl  
137 groups, substituted and unsubstituted aryloxyalkyl groups, and  
138 substituted and unsubstituted heterocycloxyalkyl groups;

139 R<sup>16</sup> and R<sup>20</sup> may be the same or different and are independently  
140 selected from the group consisting of H, substituted and unsubstituted  
141 alkyl groups, substituted and unsubstituted aryl groups, and  
142 substituted and unsubstituted heterocyclyl groups;

143 R<sup>17</sup> and R<sup>21</sup> may be the same or different and are independently  
144 selected from the group consisting of H, substituted and unsubstituted  
145 alkyl groups, substituted and unsubstituted aryl groups, substituted  
146 and unsubstituted heterocyclyl groups, -C(=O)H, -C(=O)-alkyl  
147 groups, -C(=O)-aryl groups, -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl)  
148 groups, -C(=O)NH(aryl) groups, -C(=O)N(alkyl)<sub>2</sub> groups,  
149 -C(=O)N(aryl)<sub>2</sub> groups, -C(=O)N(alkyl)(aryl) groups,

150 -C(=O)O-alkyl groups, -C(=O)O-aryl groups, substituted and  
 151 unsubstituted heterocyclylalkyl groups, substituted and unsubstituted  
 152 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
 153 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
 154 substituted and unsubstituted arylaminoalkyl groups, substituted and  
 155 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
 156 (alkyl)(aryl)aminoalkyl groups, -C(=O)-heterocyclyl groups,  
 157 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,  
 158 -C(=O)-N(heterocyclyl)<sub>2</sub> groups, -C(=O)N(aryl)(heterocyclyl)  
 159 groups, -C(=O)-N(alkyl)(heterocyclyl) groups, substituted and  
 160 unsubstituted heterocyclylaminoalkyl groups, substituted and  
 161 unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
 162 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
 163 groups, and substituted and unsubstituted heterocyclyloxyalkyl  
 164 groups;

165 R<sup>18</sup>, R<sup>23</sup>, R<sup>24</sup>, and R<sup>25</sup> may be the same or different and are  
 166 independently selected from the group consisting of H, -NH<sub>2</sub>,  
 167 -NH(alkyl) groups, -NH(aryl) groups, -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub>  
 168 groups, -N(alkyl)(aryl) groups, -NH(heterocyclyl) groups,  
 169 -N(heterocyclyl)(alkyl) groups, -N(heterocyclyl)(aryl) groups,  
 170 -N(heterocyclyl)<sub>2</sub> groups, substituted and unsubstituted alkyl groups,  
 171 substituted and unsubstituted aryl groups, -OH, substituted and  
 172 unsubstituted alkoxy groups, substituted and unsubstituted  
 173 heterocyclyl groups, substituted and unsubstituted aryloxy groups,  
 174 -NHOH, -N(alkyl)OH groups, -N(aryl)OH groups, -N(alkyl)O-alkyl  
 175 groups, -N(aryl)O-alkyl groups, -N(alkyl)O-aryl groups, and  
 176 -N(aryl)O-aryl groups; and

177 R<sup>22</sup> is selected from the group consisting of substituted and  
178 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
179 and substituted and unsubstituted heterocyclyl groups.

1 9. The compound according to claim 8, wherein Y is selected  
2 from the group consisting of -OR<sup>10</sup> groups, -NR<sup>12</sup>R<sup>13</sup> groups, and substituted and  
3 unsubstituted alkynyl groups.

1 10. The compound according to claim 8, wherein Z is an -NR<sup>14</sup>  
2 group.

1 11. The compound according to claim 8, wherein R<sup>1</sup> is selected  
2 from the group consisting of -H, substituted and unsubstituted alkoxy groups,  
3 substituted and unsubstituted heterocyclalkoxy groups, substituted and  
4 unsubstituted heterocyclloxy groups, and substituted and unsubstituted heterocycl  
5 groups.

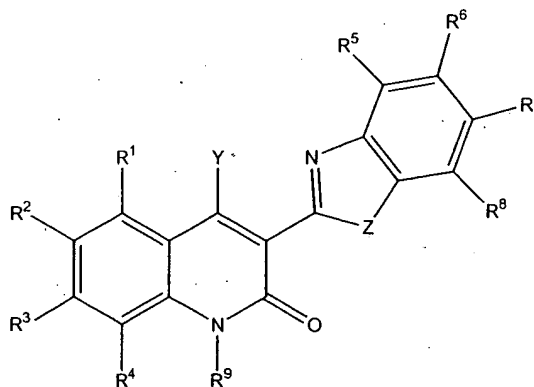
1 12. The compound according to claim 8, wherein R<sup>2</sup> is selected  
2 from the group consisting of H, F, Cl, -NO<sub>2</sub>, substituted and unsubstituted  
3 heterocyclyl groups, and substituted and unsubstituted heterocyclalkoxy groups.

1 13. The compound according to claim 8, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2 alkyl group.

1 14. The compound according to claim 8, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2 -OR<sup>19</sup> group and R<sup>19</sup> is an alkyl group, an aryl group, a heterocyclyl group, or a  
3 heterocyclalkyl group.

- 1                    15. A compound having the structure I, a tautomer of the  
2 compound, a pharmaceutically acceptable salt of the compound, or a  
3 pharmaceutically acceptable salt of the tautomer

4



I

5

6

wherein,

- 7                    Y is selected from the group consisting of -OH, SH, alkylthio  
8 groups, arylthio groups, -OR<sup>10</sup> groups, -C(=O)-R<sup>11</sup> groups, -NR<sup>12</sup>R<sup>13</sup>  
9 groups, -CN, substituted and unsubstituted alkyl groups, substituted  
10 and unsubstituted alkenyl groups, substituted and unsubstituted  
11 alkynyl groups, substituted and unsubstituted aralkyl groups,  
12 substituted and unsubstituted heterocyclylalkyl groups, substituted  
13 and unsubstituted alkylaminoalkyl groups, substituted and  
14 unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted  
15 arylaminoalkyl groups, substituted and unsubstituted  
16 diarylaminoalkyl groups, substituted and unsubstituted  
17 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
18 heterocyclylaminoalkyl groups, substituted and unsubstituted  
19 heterocyclyl groups, substituted and unsubstituted aryl groups,  
20 substituted and unsubstituted heterocyclyloxyalkyl groups, substituted



21 and unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
22 alkoxyalkyl groups, and substituted and unsubstituted aryloxyalkyl  
23 groups;

24 Z is selected from the group consisting of O, S, and  $\text{NR}^{14}$  groups;

25  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$  may be the same or different and are  
26 independently selected from the group consisting of H, Cl, Br, F, I,  
27 -CN, -NO<sub>2</sub>, -OH, -OR<sup>15</sup> groups, -NR<sup>16</sup>R<sup>17</sup> groups, substituted and  
28 unsubstituted amidinyl groups, substituted and unsubstituted  
29 guanidinyl groups, substituted and unsubstituted primary, secondary,  
30 and tertiary alkyl groups, substituted and unsubstituted aryl groups,  
31 substituted and unsubstituted alkenyl groups, substituted and  
32 unsubstituted alkynyl groups, substituted and unsubstituted  
33 heterocyclyl groups, substituted and unsubstituted aminoalkyl groups,  
34 substituted and unsubstituted alkylaminoalkyl groups, substituted and  
35 unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted  
36 arylaminoalkyl groups, substituted and unsubstituted  
37 diarylaminoalkyl groups, substituted and unsubstituted  
38 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
39 heterocyclylalkyl groups, and -C(=O)R<sup>18</sup> groups;

40  $\text{R}^5$ ,  $\text{R}^6$ ,  $\text{R}^7$ , and  $\text{R}^8$  may be the same or different and are  
41 independently selected from the group consisting of H, Cl, Br, F, I,  
42 -NO<sub>2</sub>, -OH, -OR<sup>19</sup> groups, -NR<sup>20</sup>R<sup>21</sup> groups, -SH, -SR<sup>22</sup> groups,  
43 -S(=O)R<sup>23</sup> groups, -S(=O)<sub>2</sub>R<sup>24</sup> groups, -CN, substituted and  
44 unsubstituted amidinyl groups, substituted and unsubstituted  
45 guanidinyl groups, substituted and unsubstituted primary, secondary,  
46 and tertiary alkyl groups, substituted and unsubstituted aryl groups,  
47 substituted and unsubstituted alkenyl groups, substituted and  
48 unsubstituted alkynyl groups, substituted and unsubstituted

49 heterocyclyl groups, substituted and unsubstituted alkylaminoalkyl  
50 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
51 substituted and unsubstituted arylaminoalkyl groups, substituted and  
52 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
-53 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
54 heterocyclylalkyl groups,  $-C(=O)R^{25}$  groups, substituted and  
55 unsubstituted aminoalkyl groups, substituted and unsubstituted  
56 heterocyclylaminoalkyl groups, substituted and unsubstituted  
57 hydroxyalkyl groups, substituted and unsubstituted alkoxyalkyl  
58 groups, substituted and unsubstituted aryloxyalkyl groups, and  
59 substituted and unsubstituted heterocycliloxyalkyl groups;

60  $R^9$  and  $R^{14}$  may be the same or different and are independently  
61 selected from the group consisting of H, -OH, substituted and  
62 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
63 groups,  $-NH_2$ , substituted and unsubstituted alkylamino groups,  
64 substituted and unsubstituted arylamino groups, substituted and  
65 unsubstituted dialkylamino groups, substituted and unsubstituted  
66 diarylamino groups, substituted and unsubstituted (alkyl)(aryl)amino  
67 groups, substituted and unsubstituted alkyl groups, substituted and  
68 unsubstituted aryl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl groups, and  
69  $-C(=O)$ -aryl groups;

70  $R^{10}$  is selected from the group consisting of substituted and  
71 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
72 substituted and unsubstituted heterocyclyl groups, substituted and  
73 unsubstituted heterocyclylalkyl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl  
74 groups,  $-C(=O)$ -aryl groups,  $-C(=O)O$ -alkyl groups,  $-C(=O)O$ -aryl  
75 groups,  $-C(=O)NH_2$ ,  $-C(=O)NH$ (alkyl) groups,  $-C(=O)NH$ (aryl)  
76 groups,  $-C(=O)N$ (alkyl)<sub>2</sub> groups,  $-C(=O)N$ (aryl)<sub>2</sub> groups,  
77  $-C(=O)N$ (alkyl)(aryl) groups,  $-NH_2$ ,  $-NH$ (alkyl) groups,  $-NH$ (aryl)

78 groups, -N(alkyl)<sub>2</sub> groups, -N(alkyl)(aryl) groups, -N(aryl)<sub>2</sub> groups,  
79 -C(=O)NH(heterocyclyl) groups, -C(=O)N(heterocyclyl)<sub>2</sub> groups,  
80 -C(=O)N(alkyl)(heterocyclyl) groups, and  
81 -C(=O)N(aryl)(heterocyclyl) groups;

82 R<sup>11</sup> is selected from the group consisting of H, -OH, alkoxy groups,  
83 aryloxy groups, -NH<sub>2</sub>, -NH(alkyl) groups, -NH(aryl) groups,  
84 -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub> groups, -N(alkyl)(aryl) groups,  
85 substituted and unsubstituted alkyl groups, -NH(heterocyclyl) groups,  
86 -N(heterocyclyl)<sub>2</sub> groups, -N(alkyl)(heterocyclyl) groups, and  
87 substituted and unsubstituted aryl groups;

88 R<sup>12</sup> is selected from the group consisting of H, substituted and  
89 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
90 and substituted and unsubstituted heterocyclyl groups;

91 R<sup>13</sup> is selected from the group consisting of H, substituted and  
92 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
93 substituted and unsubstituted heterocyclyl groups, -OH, alkoxy  
94 groups, aryloxy groups, -NH<sub>2</sub>, substituted and unsubstituted  
95 heterocyclylalkyl groups, substituted and unsubstituted aminoalkyl  
96 groups, substituted and unsubstituted alkylaminoalkyl groups,  
97 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
98 and unsubstituted arylaminoalkyl groups, substituted and  
99 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
100 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
101 alkylamino groups, substituted and unsubstituted arylamino groups,  
102 substituted and unsubstituted dialkylamino groups, substituted and  
103 unsubstituted diarylamino groups, substituted and unsubstituted  
104 (alkyl)(aryl)amino groups, -C(=O)H, -C(=O)-alkyl groups,  
105 -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl groups,

106 -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,  
107 -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub> groups,  
108 -C(=O)N(alkyl)(aryl) groups, -C(=O)-heterocyclyl groups,  
109 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,  
110 -C(=O)-N(heterocyclyl)<sub>2</sub> groups, -C(=O)-N(alkyl)(heterocyclyl)  
111 groups, -C(=O)-N(aryl)(heterocyclyl) groups, substituted and  
112 unsubstituted heterocyclylaminoalkyl groups, substituted and  
113 unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
114 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
115 groups, and substituted and unsubstituted heterocycliloxyalkyl  
116 groups;

117 R<sup>15</sup> and R<sup>19</sup> may be the same or different and are independently  
118 selected from the group consisting of substituted and unsubstituted  
119 alkyl groups, substituted and unsubstituted aryl groups, substituted  
120 and unsubstituted heterocyclyl groups, substituted and unsubstituted  
121 heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl groups,  
122 -C(=O)-aryl groups, -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups,  
123 -C(=O)NH(aryl) groups, -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub>  
124 groups, -C(=O)N(alkyl)(aryl) groups, substituted and unsubstituted  
125 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
126 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
127 substituted and unsubstituted arylaminoalkyl groups, substituted and  
128 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
129 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
130 heterocyclylaminoalkyl, substituted and unsubstituted  
131 diheterocyclylaminoalkyl, substituted and unsubstituted  
132 (heterocyclyl)(alkyl)aminoalkyl, substituted and unsubstituted  
133 (heterocyclyl)(aryl)aminoalkyl, substituted and unsubstituted  
134 alkoxyalkyl groups, substituted and unsubstituted hydroxyalkyl

135 groups, substituted and unsubstituted aryloxyalkyl groups, and  
136 substituted and unsubstituted heterocycloxyalkyl groups;

137  $R^{16}$  and  $R^{20}$  may be the same or different and are independently  
138 selected from the group consisting of H, substituted and unsubstituted  
139 alkyl groups, substituted and unsubstituted aryl groups, and  
140 substituted and unsubstituted heterocyclyl groups;

141  $R^{17}$  and  $R^{21}$  may be the same or different and are independently  
142 selected from the group consisting of H, substituted and unsubstituted  
143 alkyl groups, substituted and unsubstituted aryl groups, substituted  
144 and unsubstituted heterocyclyl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl  
145 groups,  $-C(=O)$ -aryl groups,  $-C(=O)NH_2$ ,  $-C(=O)NH$ (alkyl)  
146 groups,  $-C(=O)NH$ (aryl) groups,  $-C(=O)N$ (alkyl)<sub>2</sub> groups,  
147  $-C(=O)N$ (aryl)<sub>2</sub> groups,  $-C(=O)N$ (alkyl)(aryl) groups,  
148  $-C(=O)O$ -alkyl groups,  $-C(=O)O$ -aryl groups, substituted and  
149 unsubstituted heterocyclylalkyl groups, substituted and unsubstituted  
150 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
151 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
152 substituted and unsubstituted arylaminoalkyl groups, substituted and  
153 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
154 (alkyl)(aryl)aminoalkyl groups,  $-C(=O)$ -heterocyclyl groups,  
155  $-C(=O)-O$ -heterocyclyl groups,  $-C(=O)NH$ (heterocyclyl) groups,  
156  $-C(=O)-N$ (heterocyclyl)<sub>2</sub> groups,  $-C(=O)-N$ (alkyl)(heterocyclyl)  
157 groups,  $-C(=O)-N$ (aryl)(heterocyclyl) groups, substituted and  
158 unsubstituted heterocyclylaminoalkyl groups, substituted and  
159 unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
160 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
161 groups, and substituted and unsubstituted heterocycloxyalkyl  
162 groups;

163 R<sup>18</sup>, R<sup>23</sup>, R<sup>24</sup>, and R<sup>25</sup> may be the same or different and are  
164 independently selected from the group consisting of H, -NH<sub>2</sub>,  
165 -NH(alkyl) groups, -NH(aryl) groups, -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub>  
166 groups, -N(alkyl)(aryl) groups, -NH(heterocyclyl) groups,  
- 167 -N(heterocyclyl)(alkyl) groups, -N(heterocyclyl)(aryl) groups,  
168 -N(heterocyclyl)<sub>2</sub> groups, substituted and unsubstituted alkyl groups,  
169 substituted and unsubstituted aryl groups, -OH, substituted and  
170 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
171 groups, substituted and unsubstituted heterocyclyl groups, -NHOH,  
172 -N(alkyl)OH groups, -N(aryl)OH groups, -N(alkyl)O-alkyl groups,  
173 -N(aryl)O-alkyl groups, -N(alkyl)O-aryl groups, and -N(aryl)O-aryl  
174 groups; and

175 R<sup>22</sup> is selected from the group consisting of substituted and  
176 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
177 and substituted and unsubstituted heterocyclyl groups;

178 and further wherein at least one of R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, or R<sup>8</sup> is selected from  
179 the group consisting of substituted and unsubstituted amidinyl groups,  
180 substituted and unsubstituted guanidinyl groups, substituted and  
181 unsubstituted saturated heterocyclyl groups, substituted and  
182 unsubstituted alkylaminoalkyl groups, substituted and unsubstituted  
183 dialkylaminoalkyl groups, substituted and unsubstituted  
184 arylaminoalkyl groups, substituted and unsubstituted  
185 diarylaminoalkyl groups, substituted and unsubstituted  
186 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
187 heterocyclylalkyl groups, substituted and unsubstituted  
188 heterocyclylaminoalkyl groups, substituted and unsubstituted  
189 hydroxyalkyl groups, substituted and unsubstituted alkoxyalkyl  
190 groups, substituted and unsubstituted aryloxyalkyl groups, and  
191 substituted and unsubstituted heterocycloxyalkyl groups; -OR<sup>19</sup>

192 groups wherein  $R^{19}$  is selected from the group consisting of  
 193 substituted and unsubstituted aryl groups, substituted and  
 194 unsubstituted heterocyclyl groups, substituted and unsubstituted  
 195 heterocyclylalkyl groups,  $-C(=O)H$ ,  $-C(=O)$ -aryl groups,  
 196  $-C(=O)NH_2$ ,  $-C(=O)NH(alkyl)$  groups,  $-C(=O)NH(aryl)$  groups,  
 197  $-C(=O)N(alkyl)_2$  groups,  $-C(=O)N(aryl)_2$  groups,  
 198  $-C(=O)N(alkyl)(aryl)$  groups, substituted and unsubstituted  
 199 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
 200 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
 201 substituted and unsubstituted arylaminoalkyl groups, substituted and  
 202 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
 203 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
 204 heterocyclylaminoalkyl groups, substituted and unsubstituted  
 205 diheterocyclylaminoalkyl groups, substituted and unsubstituted  
 206 (heterocyclyl)(alkyl)aminoalkyl groups, substituted and unsubstituted  
 207 (heterocyclyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
 208 hydroxyalkyl groups, substituted and unsubstituted alkoxyalkyl  
 209 groups, substituted and unsubstituted aryloxyalkyl groups, and  
 210 substituted and unsubstituted heterocycloxyalkyl groups;  $-NR^{20}R^{21}$   
 211 groups wherein  $R^{20}$  is selected from the group consisting of  
 212 substituted and unsubstituted heterocyclyl groups;  $-NR^{20}R^{21}$  groups  
 213 wherein  $R^{21}$  is selected from the group consisting of substituted and  
 214 unsubstituted heterocyclyl groups,  $-C(=O)H$ ,  $-C(=O)$ -aryl groups,  
 215  $-C(=O)NH_2$ ,  $-C(=O)NH(alkyl)$  groups,  $-C(=O)NH(aryl)$  groups,  
 216  $-C(=O)N(alkyl)_2$  groups,  $-C(=O)N(aryl)_2$  groups,  
 217  $-C(=O)N(alkyl)(aryl)$  groups,  $-C(=O)O$ -alkyl groups,  
 218  $-C(=O)O$ -aryl groups, substituted and unsubstituted aminoalkyl  
 219 groups, substituted and unsubstituted alkylaminoalkyl groups,  
 220 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
 221 and unsubstituted arylaminoalkyl groups, substituted and  
 222 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted

223 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
224 heterocyclylaminoalkyl groups, substituted and unsubstituted  
225 hydroxyalkyl groups, substituted and unsubstituted alkoxyalkyl  
226 groups, substituted and unsubstituted aryloxyalkyl groups, substituted  
227 and unsubstituted heterocyclylalkyl groups, and substituted and  
228 unsubstituted heterocycliloxyalkyl groups; and  $-C(=O)R^{25}$  groups  
229 wherein  $R^{25}$  is selected from the group consisting of H,  $-NH_2$ ,  
230  $-NH(alkyl)$  groups,  $-NH(aryl)$  groups,  $-N(alkyl)_2$  groups,  $-N(aryl)_2$   
231 groups,  $-N(alkyl)(aryl)$  groups,  $-NH(heterocyclyl)$  groups,  
232  $-N(heterocyclyl)(alkyl)$  groups,  $-N(heterocyclyl)(aryl)$  groups,  
233  $-N(heterocyclyl)_2$  groups, substituted and unsubstituted aryl groups,  
234 substituted and unsubstituted aryloxy groups, and substituted and  
235 unsubstituted heterocyclyl groups.

1 16. The compound according to claim 15, wherein Y is selected  
2 from the group consisting of  $-OR^{10}$  groups,  $-NR^{12}R^{13}$  groups, and substituted and  
3 unsubstituted alkynyl groups.

1 17. The compound according to claim 15, wherein Z is an  $-NR^{14}$   
2 group.

1 18. The compound according to any of claims 40-43, wherein  $R^1$   
2 is selected from the group consisting of  $-H$ , substituted and unsubstituted alkoxy  
3 groups, substituted and unsubstituted heterocyclylalkoxy groups, substituted and  
4 unsubstituted heterocycliloxy groups, and substituted and unsubstituted heterocyclyl  
5 groups.

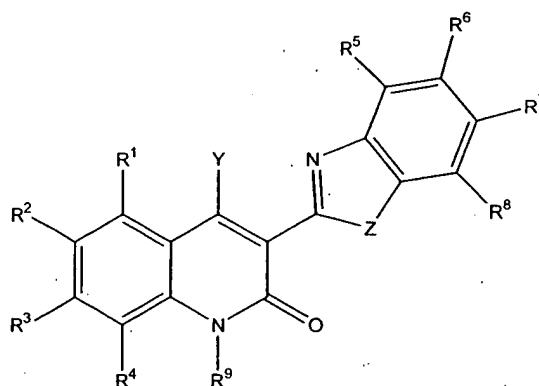
1 19. The compound according to claim 15, wherein  $R^2$  is selected  
2 from the group consisting of H, F, Cl,  $-NO_2$ , substituted and unsubstituted  
3 heterocyclyl groups, and substituted and unsubstituted heterocyclylalkoxy groups.



1                    20.    The compound according to claim 15, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2 alkyl group.

1                    21.    The compound according to claim 15, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2 -OR<sup>19</sup> group and R<sup>19</sup> is an alkyl group, an aryl group, a heterocyclyl group, or a  
3 heterocyclylalkyl group.

1                    22.    A compound having the structure I, a tautomer of the  
2 compound, a pharmaceutically acceptable salt of the compound, or a  
3 pharmaceutically acceptable salt of the tautomer



I

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wherein,

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Y is selected from the group consisting of -OH, SH, alkylthio  
groups, arylthio groups, -OR<sup>10</sup> groups, -C(=O)-R<sup>11</sup> groups, -NR<sup>12</sup>R<sup>13</sup>  
groups, -CN, substituted and unsubstituted alkyl groups, substituted  
and unsubstituted alkenyl groups, substituted and unsubstituted  
alkynyl groups, substituted and unsubstituted aralkyl groups,  
substituted and unsubstituted heterocyclylalkyl groups, substituted  
and unsubstituted alkylaminoalkyl groups, substituted and  
unsubstituted dialkylaminoalkyl groups, substituted and unsubstituted  
arylalkyl groups, substituted and unsubstituted

15           diarylaminomethyl groups, substituted and unsubstituted  
16           (alkyl)(aryl)aminomethyl groups, substituted and unsubstituted  
17           heterocyclylaminoalkyl groups, substituted and unsubstituted  
18           heterocyclyl groups, substituted and unsubstituted aryl groups,  
19           substituted and unsubstituted heterocycloxyalkyl groups, substituted  
20           and unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
21           alkoxyalkyl groups, and substituted and unsubstituted aryloxyalkyl  
22           groups;

23           Z is selected from the group consisting of O, S, and  $\text{NR}^{14}$  groups;

24            $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , and  $\text{R}^4$  may be the same or different and are  
25           independently selected from the group consisting of H, Cl, Br, F, I,  
26           -CN, -NO<sub>2</sub>, -OH, -OR<sup>15</sup> groups, -NR<sup>16</sup>R<sup>17</sup> groups, substituted and  
27           unsubstituted amidinyl groups, substituted and unsubstituted  
28           guanidinyl groups, substituted and unsubstituted primary, secondary,  
29           and tertiary alkyl groups, substituted and unsubstituted aryl groups,  
30           substituted and unsubstituted alkenyl groups, substituted and  
31           unsubstituted alkynyl groups, substituted and unsubstituted  
32           heterocyclyl groups, substituted and unsubstituted aminoalkyl groups,  
33           substituted and unsubstituted alkylaminomethyl groups, substituted and  
34           unsubstituted dialkylaminomethyl groups, substituted and unsubstituted  
35           arylaminoalkyl groups, substituted and unsubstituted  
36           diarylaminomethyl groups, substituted and unsubstituted  
37           (alkyl)(aryl)aminomethyl groups, substituted and unsubstituted  
38           heterocyclylalkyl groups, and -C(=O)R<sup>18</sup> groups;

39            $\text{R}^5$ ,  $\text{R}^6$ ,  $\text{R}^7$ , and  $\text{R}^8$  may be the same or different and are  
40           independently selected from the group consisting of H, Cl, Br, F, I,  
41           -NO<sub>2</sub>, -OH, -OR<sup>19</sup> groups, -NR<sup>20</sup>R<sup>21</sup> groups, -SH, -SR<sup>22</sup> groups,  
42           -S(=O)R<sup>23</sup> groups, -S(=O)<sub>2</sub>R<sup>24</sup> groups, -CN, substituted and

43 unsubstituted amidinyl groups, substituted and unsubstituted  
44 guanidinyl groups, substituted and unsubstituted primary, secondary,  
45 and tertiary alkyl groups, substituted and unsubstituted aryl groups,  
46 substituted and unsubstituted alkenyl groups, substituted and  
47 unsubstituted-alkynyl groups, substituted and unsubstituted  
48 heterocyclyl groups, substituted and unsubstituted alkylaminoalkyl  
49 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
50 substituted and unsubstituted arylaminoalkyl groups, substituted and  
51 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
52 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
53 heterocyclylalkyl groups,  $-C(=O)R^{25}$  groups, substituted and  
54 unsubstituted aminoalkyl groups, substituted and unsubstituted  
55 heterocyclylaminoalkyl groups, substituted and unsubstituted  
56 hydroxyalkyl groups, substituted and unsubstituted alkoxyalkyl  
57 groups, substituted and unsubstituted aryloxyalkyl groups, and  
58 substituted and unsubstituted heterocycloxyalkyl groups;

59  $R^9$  and  $R^{14}$  may be the same or different and are independently  
60 selected from the group consisting of H, -OH, substituted and  
61 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
62 groups,  $-NH_2$ , substituted and unsubstituted alkylamino groups,  
63 substituted and unsubstituted arylamino groups, substituted and  
64 unsubstituted dialkylamino groups, substituted and unsubstituted  
65 diarylamino groups, substituted and unsubstituted (alkyl)(aryl)amino  
66 groups, substituted and unsubstituted alkyl groups, substituted and  
67 unsubstituted aryl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl groups, and  
68  $-C(=O)$ -aryl groups;

69  $R^{10}$  is selected from the group consisting of substituted and  
70 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
71 substituted and unsubstituted heterocyclyl groups, substituted and

72 unsubstituted heterocyclalkyl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl  
73 groups,  $-C(=O)$ -aryl groups,  $-C(=O)O$ -alkyl groups,  $-C(=O)O$ -aryl  
74 groups,  $-C(=O)NH_2$ ,  $-C(=O)NH$ (alkyl) groups,  $-C(=O)NH$ (aryl)  
75 groups,  $-C(=O)N$ (alkyl)<sub>2</sub> groups,  $-C(=O)N$ (aryl)<sub>2</sub> groups,  
76  $-C(=O)N$ (alkyl)(aryl) groups,  $-NH_2$ ,  $-NH$ (alkyl) groups,  $-NH$ (aryl)  
77 groups,  $-N$ (alkyl)<sub>2</sub> groups,  $-N$ (alkyl)(aryl) groups,  $-N$ (aryl)<sub>2</sub> groups,  
78  $-C(=O)NH$ (heterocycl) groups,  $-C(=O)N$ (heterocycl)<sub>2</sub> groups,  
79  $-C(=O)N$ (alkyl)(heterocycl) groups, and  
80  $-C(=O)N$ (aryl)(heterocycl) groups;

81  $R^{11}$  is selected from the group consisting of H, -OH, alkoxy groups,  
82 aryloxy groups,  $-NH_2$ ,  $-NH$ (alkyl) groups,  $-NH$ (aryl) groups,  
83  $-N$ (alkyl)<sub>2</sub> groups,  $-N$ (aryl)<sub>2</sub> groups,  $-N$ (alkyl)(aryl) groups,  
84 substituted and unsubstituted alkyl groups,  $-NH$ (heterocycl) groups,  
85  $-N$ (heterocycl)<sub>2</sub> groups,  $-N$ (alkyl)(heterocycl) groups, and  
86 substituted and unsubstituted aryl groups;

87  $R^{12}$  is selected from the group consisting of H, substituted and  
88 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
89 and substituted and unsubstituted heterocycl groups;

90  $R^{13}$  is selected from the group consisting of H, substituted and  
91 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
92 substituted and unsubstituted heterocycl groups, -OH, alkoxy  
93 groups, aryloxy groups,  $-NH_2$ , substituted and unsubstituted  
94 heterocyclalkyl groups, substituted and unsubstituted aminoalkyl  
95 groups, substituted and unsubstituted alkylaminoalkyl groups,  
96 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
97 and unsubstituted arylaminoalkyl groups, substituted and  
98 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
99 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted

100 alkylamino groups, substituted and unsubstituted arylamino groups,  
101 substituted and unsubstituted dialkylamino groups, substituted and  
102 unsubstituted diarylamino groups, substituted and unsubstituted  
103 (alkyl)(aryl)amino groups, -C(=O)H, -C(=O)-alkyl groups,  
104 -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl groups,  
105 -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,  
106 -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub> groups,  
107 -C(=O)N(alkyl)(aryl) groups, -C(=O)-heterocyclyl groups,  
108 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,  
109 -C(=O)-N(heterocyclyl)<sub>2</sub> groups, -C(=O)-N(alkyl)(heterocyclyl)  
110 groups, -C(=O)-N(aryl)(heterocyclyl) groups, substituted and  
111 unsubstituted heterocyclylaminoalkyl groups, substituted and  
112 unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
113 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
114 groups, and substituted and unsubstituted heterocyclyoxyalkyl  
115 groups;

116 R<sup>15</sup> and R<sup>19</sup> may be the same or different and are independently  
117 selected from the group consisting of substituted and unsubstituted  
118 alkyl groups, substituted and unsubstituted aryl groups, substituted  
119 and unsubstituted heterocyclyl groups, substituted and unsubstituted  
120 heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl groups,  
121 -C(=O)-aryl groups, -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups,  
122 -C(=O)NH(aryl) groups, -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub>  
123 groups, -C(=O)N(alkyl)(aryl) groups, substituted and unsubstituted  
124 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
125 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
126 substituted and unsubstituted arylaminoalkyl groups, substituted and  
127 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
128 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
129 heterocyclylaminoalkyl, substituted and unsubstituted

130 diheterocyclylaminoalkyl, substituted and unsubstituted  
131 (heterocyclyl)(alkyl)aminoalkyl, substituted and unsubstituted  
132 (heterocyclyl)(aryl)aminoalkyl, substituted and unsubstituted  
133 alkoxyalkyl groups, substituted and unsubstituted hydroxyalkyl  
134 groups, substituted and unsubstituted aryloxyalkyl groups, and  
135 substituted and unsubstituted heterocycloxyalkyl groups;

136  $R^{16}$  and  $R^{20}$  may be the same or different and are independently  
137 selected from the group consisting of H, substituted and unsubstituted  
138 alkyl groups, substituted and unsubstituted aryl groups, and  
139 substituted and unsubstituted heterocyclyl groups;

140  $R^{17}$  and  $R^{21}$  may be the same or different and are independently  
141 selected from the group consisting of H, substituted and unsubstituted  
142 alkyl groups, substituted and unsubstituted aryl groups, substituted  
143 and unsubstituted heterocyclyl groups,  $-C(=O)H$ ,  $-C(=O)$ -alkyl  
144 groups,  $-C(=O)$ -aryl groups,  $-C(=O)NH_2$ ,  $-C(=O)NH(alkyl)$   
145 groups,  $-C(=O)NH(aryl)$  groups,  $-C(=O)N(alkyl)_2$  groups,  
146  $-C(=O)N(aryl)_2$  groups,  $-C(=O)N(alkyl)(aryl)$  groups,  
147  $-C(=O)O$ -alkyl groups,  $-C(=O)O$ -aryl groups, substituted and  
148 unsubstituted heterocyclylalkyl groups, substituted and unsubstituted  
149 aminoalkyl groups, substituted and unsubstituted alkylaminoalkyl  
150 groups, substituted and unsubstituted dialkylaminoalkyl groups,  
151 substituted and unsubstituted arylaminoalkyl groups, substituted and  
152 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
153 (alkyl)(aryl)aminoalkyl groups,  $-C(=O)$ -heterocyclyl groups,  
154  $-C(=O)$ -O-heterocyclyl groups,  $-C(=O)NH(heterocyclyl)$  groups,  
155  $-C(=O)$ -N(heterocyclyl) $_2$  groups,  $-C(=O)$ -N(alkyl)(heterocyclyl)  
156 groups,  $-C(=O)$ -N(aryl)(heterocyclyl) groups, substituted and  
157 unsubstituted heterocyclylaminoalkyl groups, substituted and  
158 unsubstituted hydroxyalkyl groups, substituted and unsubstituted

159 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
160 groups, and substituted and unsubstituted heterocycloxyalkyl  
161 groups;

162  $R^{18}$ ,  $R^{23}$ ,  $R^{24}$ , and  $R^{25}$  may be the same or different and are  
163 independently selected from the group consisting of H,  $-NH_2$ ,  
164  $-NH(alkyl)$  groups,  $-NH(aryl)$  groups,  $-N(alkyl)_2$  groups,  $-N(aryl)_2$   
165 groups,  $-N(alkyl)(aryl)$  groups,  $-NH(heterocyclyl)$  groups,  
166  $-N(heterocyclyl)(alkyl)$  groups,  $-N(heterocyclyl)(aryl)$  groups,  
167  $-N(heterocyclyl)_2$  groups, substituted and unsubstituted alkyl groups,  
168 substituted and unsubstituted aryl groups,  $-OH$ , substituted and  
169 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
170 groups, substituted and unsubstituted heterocyclyl groups,  $-NHOH$ ,  
171  $-N(alkyl)OH$  groups,  $-N(aryl)OH$  groups,  $-N(alkyl)O-alkyl$  groups,  
172  $-N(aryl)O-alkyl$  groups,  $-N(alkyl)O-aryl$  groups, and  $-N(aryl)O-aryl$   
173 groups; and

174  $R^{22}$  is selected from the group consisting of substituted and  
175 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
176 and substituted and unsubstituted heterocyclyl groups,

177 and further wherein, at least one of  $R^1$ ,  $R^2$ ,  $R^3$ , or  $R^4$  is an  $-OR^{15}$   
178 group and  $R^{15}$  is selected from the group consisting of substituted and  
179 unsubstituted heterocyclylalkyl groups, substituted and unsubstituted  
180 dialkylaminoalkyl groups, substituted and unsubstituted  
181 alkylaminoalkyl groups, substituted and unsubstituted aminoalkyl  
182 groups, substituted and unsubstituted diarylaminoalkyl groups,  
183 substituted and unsubstituted arylaminoalkyl groups, substituted and  
184 unsubstituted (alkyl)(aryl)aminoalkyl groups, substituted and  
185 unsubstituted heterocyclyl groups, substituted and unsubstituted  
186 heterocyclylaminoalkyl groups, substituted and unsubstituted

187 diheterocyclylaminoalkyl groups, substituted and unsubstituted  
188 (heterocyclyl)(alkyl)aminoalkyl groups, and substituted and  
189 unsubstituted (heterocyclyl)(aryl)aminoalkyl groups.

1 23. The compound according to claim 22, wherein R<sup>1</sup> is an -OR<sup>15</sup>  
2 group and R<sup>15</sup> is selected from the group consisting of substituted and unsubstituted  
3 heterocyclylalkyl groups, substituted and unsubstituted dialkylaminoalkyl groups,  
4 substituted and unsubstituted alkylaminoalkyl groups, substituted and unsubstituted  
5 aminoalkyl groups, substituted and unsubstituted diarylaminoalkyl groups,  
6 substituted and unsubstituted arylaminoalkyl groups, substituted and unsubstituted  
7 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted heterocyclyl groups,  
8 substituted and unsubstituted heterocyclylaminoalkyl groups, substituted and  
9 unsubstituted diheterocyclylaminoalkyl groups, substituted and unsubstituted  
10 (heterocyclyl)(alkyl)aminoalkyl groups, and substituted and unsubstituted  
11 (heterocyclyl)(aryl)aminoalkyl groups.

1 24. The compound according to claim 22, wherein Z is an -NR<sup>10</sup>  
2 group.

1 25. The compound according to claim 22, wherein R<sup>1</sup> is selected  
2 from the group consisting of -H, substituted and unsubstituted alkoxy groups,  
3 substituted and unsubstituted heterocyclylalkoxy groups, substituted and  
4 unsubstituted heterocycliloxy groups, and substituted and unsubstituted heterocyclyl  
5 groups.

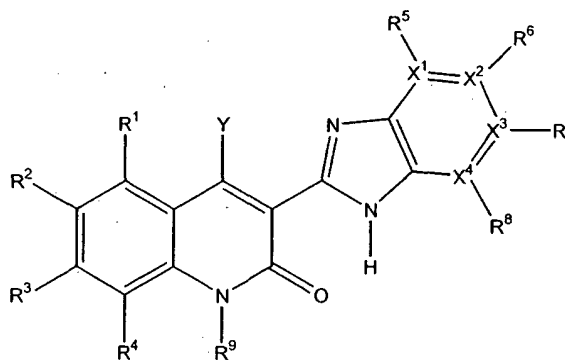
1 26. The compound according to claim 22, wherein R<sup>2</sup> is selected  
2 from the group consisting of H, F, Cl, -NO<sub>2</sub>, substituted and unsubstituted  
3 heterocyclyl groups, and substituted and unsubstituted heterocyclylalkoxy groups.



1                    27.    The compound according to claim 22, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2    alkyl group.

1                    28.    The compound according to claim 22, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2    -OR<sup>19</sup> group and R<sup>19</sup> is an alkyl group, an aryl group, a heterocyclyl group, or a  
3    heterocyclylalkyl group.

1                    29.    A compound having the structure II, a tautomer of the  
2    compound, a pharmaceutically acceptable salt of the compound, or a  
3    pharmaceutically acceptable salt of the tautomer



II

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wherein,

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Y is selected from the group consisting of H, -OH, -OR<sup>10</sup> groups,  
-SH, -SR<sup>11</sup> groups, -NR<sup>12</sup>R<sup>13</sup> groups, -CN, -C(=O)-R<sup>14</sup> groups,  
substituted and unsubstituted alkyl groups, substituted and  
unsubstituted alkenyl groups, substituted and unsubstituted alkynyl  
groups, substituted and unsubstituted aralkyl groups, substituted and  
unsubstituted heterocyclylalkyl groups, substituted and unsubstituted  
alkylaminoalkyl groups, substituted and unsubstituted  
dialkylaminoalkyl groups, substituted and unsubstituted  
arylaminoalkyl groups, substituted and unsubstituted

15 diarylaminoalkyl groups, substituted and unsubstituted  
16 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
17 heterocyclylaminoalkyl groups, substituted and unsubstituted  
18 heterocyclyl groups, substituted and unsubstituted aryl groups,  
19 substituted and unsubstituted hydroxyalkyl groups, substituted and  
20 unsubstituted alkoxyalkyl groups, substituted and unsubstituted  
21 aryloxyalkyl groups, and substituted and unsubstituted  
22 heterocyclioxyalkyl groups;

23  $X^1$ ,  $X^2$ ,  $X^3$ , and  $X^4$  are selected from the group consisting of C and  
24 N, wherein at least one of  $X^1$ ,  $X^2$ ,  $X^3$ , or  $X^4$  is N;

25  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ , and  $R^8$  may be the same or different and  
26 are independently selected from the group consisting of H, Cl, Br, F,  
27 I,  $-\text{NO}_2$ ,  $-\text{CN}$ ,  $-\text{OH}$ ,  $-\text{OR}^{15}$  groups,  $-\text{NR}^{16}\text{R}^{17}$  groups,  $-\text{C}(=\text{O})\text{R}^{18}$   
28 groups,  $-\text{SH}$ ,  $-\text{SR}^{19}$  groups,  $-\text{S}(=\text{O})\text{R}^{20}$  groups,  $\text{S}(=\text{O})_2\text{R}^{21}$  groups,  
29 substituted and unsubstituted amidinyl groups, substituted and  
30 unsubstituted guanidinyl groups, substituted and unsubstituted  
31 primary, secondary, and tertiary alkyl groups, substituted and  
32 unsubstituted aryl groups, substituted and unsubstituted alkenyl  
33 groups, substituted and unsubstituted alkynyl groups, substituted and  
34 unsubstituted heterocyclyl groups, substituted and unsubstituted  
35 alkylaminoalkyl groups, substituted and unsubstituted  
36 dialkylaminoalkyl groups, substituted and unsubstituted  
37 arylaminoalkyl groups, substituted and unsubstituted  
38 diarylaminoalkyl groups, substituted and unsubstituted  
39 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
40 heterocyclylalkyl groups, substituted and unsubstituted aminoalkyl  
41 groups, substituted and unsubstituted heterocyclylaminoalkyl groups,  
42 substituted and unsubstituted hydroxyalkyl groups, substituted and  
43 unsubstituted alkoxyalkyl groups, substituted and unsubstituted

44 aryloxyalkyl groups, and substituted and unsubstituted  
45 heterocyclyloxyalkyl groups;  $R^5$  is absent or is H if  $X^1$  is N;  $R^6$  is  
46 absent or is H if  $X^2$  is N;  $R^7$  is absent or is H if  $X^3$  is N; and  $R^8$  is  
47 absent or is H if  $X^4$  is N;

48  $R^9$  is selected from the group consisting of H, -OH, substituted and  
49 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
50 groups, -NH<sub>2</sub>, substituted and unsubstituted alkylamino groups,  
51 substituted and unsubstituted arylamino groups, substituted and  
52 unsubstituted dialkylamino groups, substituted and unsubstituted  
53 diarylamino groups, substituted and unsubstituted (alkyl)(aryl)amino  
54 groups, substituted and unsubstituted alkyl groups, substituted and  
55 unsubstituted aryl groups, -C(=O)H, -C(=O)-alkyl groups, and  
56 -C(=O)-aryl groups;

57  $R^{10}$  is selected from the group consisting of substituted and  
58 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
59 substituted and unsubstituted heterocyclyl groups, substituted and  
60 unsubstituted heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl  
61 groups, -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl  
62 groups, -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl)  
63 groups, -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub> groups,  
64 -C(=O)N(alkyl)(aryl) groups, -NH<sub>2</sub>, -NH(alkyl) groups, -NH(aryl)  
65 groups, -N(alkyl)<sub>2</sub> groups, -N(alkyl)(aryl) groups, -N(aryl)<sub>2</sub> groups,  
66 -C(=O)NH(heterocyclyl) groups, -C(=O)N(heterocyclyl)<sub>2</sub> groups,  
67 -C(=O)N(alkyl)(heterocyclyl) groups, and  
68 -C(=O)N(aryl)(heterocyclyl) groups;

69  $R^{11}$  and  $R^{19}$  may be the same or different and are independently  
70 selected from the group consisting of substituted and unsubstituted  
71 alkyl groups, and substituted and unsubstituted aryl groups;

72 R<sup>12</sup> is selected from the group consisting of H, substituted and  
73 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
74 and substituted and unsubstituted heterocyclyl groups;

75 R<sup>13</sup> is selected from the group consisting of H, substituted and  
76 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
77 substituted and unsubstituted heterocyclyl groups, -OH, alkoxy  
78 groups, aryloxy groups, -NH<sub>2</sub>, substituted and unsubstituted  
79 heterocyclylalkyl groups, substituted and unsubstituted aminoalkyl  
80 groups, substituted and unsubstituted alkylaminoalkyl groups,  
81 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
82 and unsubstituted arylaminoalkyl groups, substituted and  
83 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
84 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
85 alkylamino groups, substituted and unsubstituted arylamino groups,  
86 substituted and unsubstituted dialkylamino groups, substituted and  
87 unsubstituted diarylamino groups, substituted and unsubstituted  
88 (alkyl)(aryl)amino groups, -C(=O)H, -C(=O)-alkyl groups,  
89 -C(=O)-aryl groups, -C(=O)O-alkyl groups, -C(=O)O-aryl groups,  
90 -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl) groups, -C(=O)NH(aryl) groups,  
91 -C(=O)N(alkyl)<sub>2</sub> groups, -C(=O)N(aryl)<sub>2</sub> groups,  
92 -C(=O)N(alkyl)(aryl) groups, -C(=O)-heterocyclyl groups,  
93 -C(=O)-O-heterocyclyl groups, -C(=O)NH(heterocyclyl) groups,  
94 -C(=O)-N(heterocyclyl)<sub>2</sub> groups, -C(=O)-N(alkyl)(heterocyclyl)  
95 groups, -C(=O)-N(aryl)(heterocyclyl) groups, substituted and  
96 unsubstituted heterocyclylaminoalkyl groups, substituted and  
97 unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
98 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
99 groups, and substituted and unsubstituted heterocycliloxyalkyl  
100 groups;

101 R<sup>14</sup> is selected from the group consisting of H, -OH, alkoxy groups,  
102 aryloxy groups, -NH<sub>2</sub>, -NH(alkyl) groups, -NH(aryl) groups,  
103 -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub> groups, -N(alkyl)(aryl) groups,  
104 substituted and unsubstituted alkyl groups, substituted and  
105 unsubstituted aryl groups, -NH(heterocyclyl) groups,  
106 -N(heterocyclyl)<sub>2</sub> groups, -N(alkyl)(heterocyclyl) groups, and  
107 -N(aryl)(heterocyclyl) groups;

108 R<sup>12</sup> and R<sup>13</sup> may join together to form a 5 to 7 membered saturated or  
109 unsaturated, substituted or unsubstituted N-containing ring;

110 R<sup>15</sup> is selected from the group consisting of substituted and  
111 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
112 substituted and unsubstituted heterocyclyl groups, substituted and  
113 unsubstituted heterocyclylalkyl groups, -C(=O)H, -C(=O)-alkyl  
114 groups, -C(=O)-aryl groups, -C(=O)NH<sub>2</sub>, -C(=O)NH(alkyl)  
115 groups, -C(=O)NH(aryl) groups, -C(=O)N(alkyl)<sub>2</sub> groups,  
116 -C(=O)N(aryl)<sub>2</sub> groups, -C(=O)N(alkyl)(aryl) groups, substituted  
117 and unsubstituted aminoalkyl groups, substituted and unsubstituted  
118 alkylaminoalkyl groups, substituted and unsubstituted  
119 dialkylaminoalkyl groups, substituted and unsubstituted  
120 arylaminoalkyl groups, substituted and unsubstituted  
121 diarylaminoalkyl groups, substituted and unsubstituted  
122 (alkyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
123 heterocyclylaminoalkyl groups, substituted and unsubstituted  
124 diheterocyclylaminoalkyl groups, substituted and unsubstituted  
125 (heterocyclyl)(alkyl)aminoalkyl groups, substituted and unsubstituted  
126 (heterocyclyl)(aryl)aminoalkyl groups, substituted and unsubstituted  
127 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
128 groups, substituted and unsubstituted hydroxyalkyl groups, and  
129 substituted and unsubstituted heterocycloxyalkyl groups;

130  $R^{16}$  is selected from the group consisting of H, substituted and  
131 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
132 and substituted and unsubstituted heterocyclyl groups;

133  $R^{17}$  is selected from the group consisting of H, substituted and  
134 unsubstituted alkyl groups, substituted and unsubstituted aryl groups,  
135 substituted and unsubstituted heterocyclyl groups, OH, substituted  
136 and unsubstituted alkoxy groups, substituted and unsubstituted  
137 aryloxy groups,  $-NH_2$ ,  $-C(=O)H$ ,  $-C(=O)$ -alkyl groups,  $-C(=O)$ -aryl  
138 groups,  $-C(=O)NH_2$ ,  $-C(=O)NH(alkyl)$  groups,  $-C(=O)NH(aryl)$   
139 groups,  $-C(=O)N(alkyl)_2$  groups,  $-C(=O)N(aryl)_2$  groups,  
140  $-C(=O)N(alkyl)(aryl)$  groups,  $-C(=O)O$ -alkyl groups,  
141  $-C(=O)O$ -aryl groups, substituted and unsubstituted aminoalkyl  
142 groups, substituted and unsubstituted alkylaminoalkyl groups,  
143 substituted and unsubstituted dialkylaminoalkyl groups, substituted  
144 and unsubstituted arylaminoalkyl groups, substituted and  
145 unsubstituted diarylaminoalkyl groups, substituted and unsubstituted  
146 (aryl)(alkyl)aminoalkyl groups, substituted and unsubstituted  
147 heterocyclylalkyl groups,  $-C(=O)$ -heterocyclyl groups,  
148  $-C(=O)$ -Oheterocyclyl groups,  $-C(=O)NH(heterocyclyl)$  groups,  
149  $-C(=O)$ -N(heterocyclyl) $_2$  groups,  $-C(=O)$ -N(alkyl)(heterocyclyl)  
150 groups,  $-C(=O)$ -N(aryl)(heterocyclyl) groups, substituted and  
151 unsubstituted heterocyclylaminoalkyl groups, substituted and  
152 unsubstituted hydroxyalkyl groups, substituted and unsubstituted  
153 alkoxyalkyl groups, substituted and unsubstituted aryloxyalkyl  
154 groups, and substituted and unsubstituted heterocycloxyalkyl  
155 groups;

156  $R^{16}$  and  $R^{17}$  may join together to form a 5 to 7 membered saturated or  
157 unsaturated, substituted or unsubstituted N-containing ring; and

158 R<sup>18</sup>, R<sup>20</sup>, and R<sup>21</sup> may be the same or different and are independently  
159 selected from the group consisting of H, -NH<sub>2</sub>, -NH(alkyl) groups,  
160 -NH(aryl) groups, -N(alkyl)<sub>2</sub> groups, -N(aryl)<sub>2</sub> groups,  
161 -N(alkyl)(aryl) groups, substituted and unsubstituted alkyl groups,  
162 substituted and unsubstituted aryl groups, -OH, substituted and  
163 unsubstituted alkoxy groups, substituted and unsubstituted aryloxy  
164 groups, substituted and unsubstituted heterocyclyl groups, -NHOH,  
165 -N(alkyl)OH groups, -N(aryl)OH groups, -N(alkyl)O-alkyl groups,  
166 -N(aryl)O-alkyl groups, -N(alkyl)O-aryl groups, and -N(aryl)O-aryl  
167 groups.

1 30. The compound according to claim 29, wherein Y is selected  
2 from the group consisting of H, -OH, -OR<sup>10</sup> groups, and -NR<sup>12</sup>R<sup>13</sup> groups.

1 31. The compound according to claim 29, at least two of X<sup>1</sup>, X<sup>2</sup>,  
2 X<sup>3</sup>, and X<sup>4</sup> are C and the corresponding substituents R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, and R<sup>8</sup> are  
3 hydrogen, and at least one of X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup>, and X<sup>4</sup> is N.

1 32. The compound according to claim 29, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2 alkyl group.

1 33. The compound according to claim 29, wherein R<sup>6</sup> or R<sup>7</sup> is an  
2 -OR<sup>15</sup> group and R<sup>15</sup> is an alkyl, aryl, heterocyclyl, or heterocyclylalkyl group.

1 34. The compound according to claim 29, wherein R<sup>1</sup> is selected  
2 from the group consisting of H, substituted and unsubstituted alkoxy groups,  
3 substituted and unsubstituted heterocyclylalkoxy groups, substituted and  
4 unsubstituted heterocyclloxy groups, and substituted and unsubstituted heterocyclyl  
5 groups.

1                    35.    The compound according to claim 29, wherein  $R^2$  is selected  
2    from the group consisting of H, F, Cl,  $-NO_2$ , substituted and unsubstituted  
3    heterocyclyl groups, and substituted and unsubstituted heterocyclalkoxy groups.

1                    36.    A pharmaceutical formulation, comprising the compound  
2    according to any of claims 1, 8, 15, 22, or 29 in combination with a  
3    pharmaceutically acceptable carrier.

1                    37.    A method of treating a patient in need of an inhibitor of  
2    vascular endothelial growth factor receptor tyrosine kinase, comprising  
3    administering an effective amount of the pharmaceutical formulation according to  
4    claim 36 to a patient in need thereof.